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# *Passalora caesalpiniicola* sp. nov. from India on *Caesalpinia bonduc*

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Abstract — *Passalora caesalpiniicola* on *Caesalpinia bonduc* (*Leguminosae*, *Caesalpinioideae*) is described and illustrated as a new species. It differs in several characters from the only other *Passalora* sp. recorded on *Caesalpinia* and can be differentiated from morphologically similar *Passalora* spp. on caesalpinioid hosts.

Key words — cercosporoid fungi, mycodiversity, morphotaxonomy, foliicolous hyphomycetes

## Introduction

*Passalora* Fr. belongs in the complex of cercosporoid fungi (*Capnodiales*, *Mycosphaerellaceae*). In its current circumscription, this genus is characterized by having pigmented conidiophores, thickened and darkened conidiogenous loci, either consistently internal or internal and external mycelium in vivo, and solitary to catenate, pigmented conidia with thickened and darkened hila (Braun et al. 2013, 2014, 2015; Crous & Braun 2003; Kamal 2010). During the last decade a large number of fungal species from all over the world have been recombined in *Passalora* (Braun et al. 2013, 2014, 2015; Crous & Braun 2003), particularly from India (Kamal 2010). Recently, additional *Passalora* species have been described from India (Singh et al. 2012, 2013; Kumar & Singh 2015), suggesting that the diversity of such fungi is still insufficiently known in this region. A leaf-spotting cercosporoid hyphomycete corresponding to the

current concept of *Passalora* has recently been collected on *Caesalpinia bonduc* in the Nichlaul forest of Uttar Pradesh, India. As it clearly differs from the only *Passalora* species previously described on *Caesalpinia* (also from India) and other morphologically similar *Passalora* species on hosts in *Caesalpinioideae*, we therefore propose here a new species, *Passalora caesalpiniicola*.

## Materials & methods

Living leaves with fungal symptoms were collected from a subtropical forest (Terai, Nichlaul) in Uttar Pradesh, India. The collections were carried to the laboratory and processed by standard techniques set forth in Hawksworth (1974) and Savile (1962). After the sun-dried and pressed leaves were placed in air tight polyethylene bags, they were kept in paper envelopes with collection notes. Specimens were sectioned by hand or scraped for microscopic observation. Sections from infected leaf areas were mounted in clear lacto-phenol cotton blue mount for observation under an Olympus BX-51 light microscope. Detailed morphological characters were observed (and camera-lucida line drawings made) at 400× and 1000× magnifications, and 30 conidia, hila, and conidiophores and 20 stromata (extremes shown in parentheses) were measured. Identification was made with reference to the current literature and available resident expertise. The holotype is deposited in Herbarium Cryptogamiae Indiae Orientalis, Indian Agricultural Research Institute, New Delhi, India (HCIO) and an isotype was retained in Mycological Herbarium of Birbal Sahni Institute of Palaeobotany, Lucknow, India (BSIPMH). Description and nomenclatural details have been deposited in MycoBank (www.MycoBank.org) and Faces of Fungi (www.facesoffungi.org). Classification of the new taxon is based on current concepts (Braun et al. 2013, 2014, 2015; Cannon & Kirk 2007; Crous & Braun 2003; Farr & Rossman 2015; Kirk et al. 2008; Seifert et al. 2011).

## Taxonomy

***Passalora caesalpiniicola*** Sh. Kumar & Raghv. Singh, **sp. nov.** Figs 1, 2

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Differs from *Passalora caesalpiniae* by its longer and wider conidiophores and its longer, wider, smooth, and solitary conidia.

Type: India, Uttar Pradesh, Nichlaul forest, Mahrajganj, on living leaves of *Caesalpinia bonduc* (L.) Roxb. (*Leguminosae*, *Caesalpinioideae*), 13 February 2007, coll. Shambhu Kumar (**Holotype**, HCIO 48665; **isotype**, BSIPMH 30).

Etymology: the species epithet is derived from the name of the host genus.

Infection spots hypogenous, circular to irregular, dark brown to black, 1–4 mm diam. Colonies hypophyllous, effuse, brown. Mycelium internal. Sexual morph: not developed. Asexual morph: Stromata well-developed, sub-epidermal, pseudoparenchymatous, olivaceous-brown, 28–44 µm diam. Conidiophores macronematous, fasciculate (up to 6), arising from stromata, erumpent, simple, erect to procumbent, divergent, straight, smooth, thick-

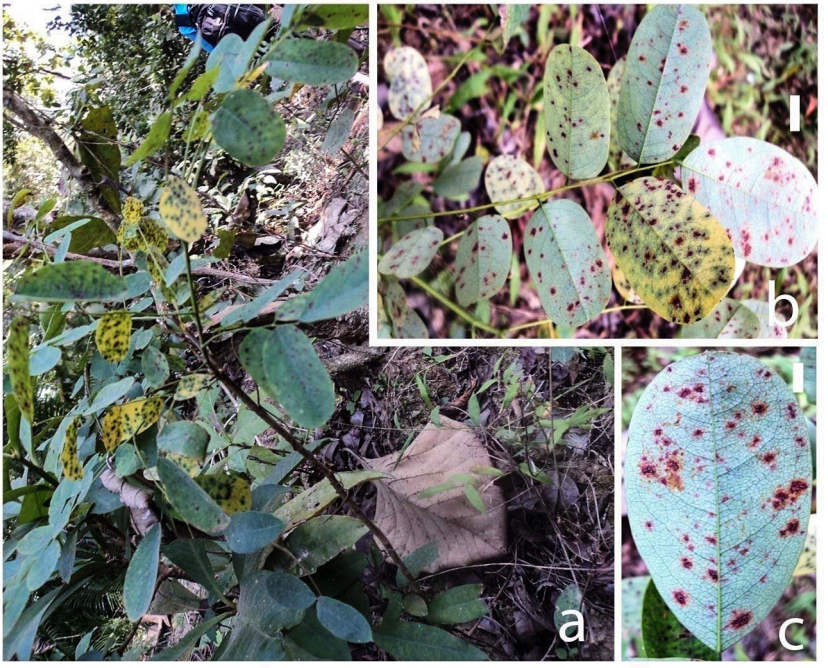


Figure 1. *Passalora caesalpiniicola* on *Caesalpinia bonduc*: a. Host plant. b. Infection spots on leaf. c. Infection spots on leaflet. Scale bars = 20 mm.

walled, ≤3× transversely euseptate, olivaceous to dark brown, 80–135 × 5–7 µm. Conidiogenous cells integrated, terminal, polyblastic, conidiogenous loci (scars) thickened and darkened, 2–3 µm wide. Conidia solitary, simple, dry, acropleurogenous, smooth, thin-walled, 3–5 times transversely septate, straight to curved, obclavate to obclavate-cylindrical, base rounded, apex obtuse to acute, olivaceous to olivaceous-brown, 25–65 × 5–10 µm, hilum thickened and darkened, 2–3 µm wide.

Comments— The only *Passalora* species previously described from *Caesalpinia* is *P. caesalpiniae* (Bhalla et al.) U. Braun et al. (Hernández-Gutiérrez & Dianese 2009; Bhalla et al. 2001, as *Phaeoramularia caesalpiniae* from *C. bonducella* [= *C. bonduc*] in India). *Passalora caesalpiniae* differs from *P. caesalpiniicola* by its amphigenous leaf spots, smaller stromata (8.5–13 × 4.5–20.5 µm), shorter narrower verruculose conidiophores (8–47 × 2.5–5 µm) arranged in larger fascicules, and its shorter narrower catenate conidia (4–30.5 × 2.5–6 µm; Bhalla et al. 2001).

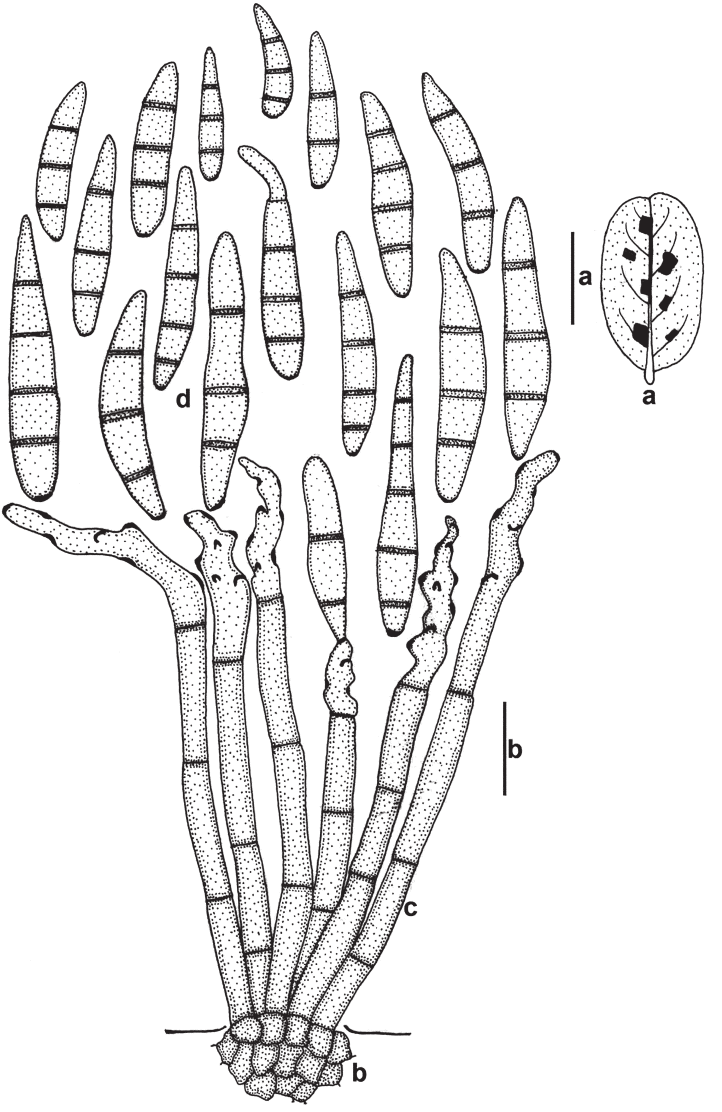


Figure 2. *Passalora caesalpiniicola* (holotype, HCIO 48665): a. Infection spots. b. Stromata. c. Conidiophores. d. Conidia. Scale bars: a = 20 mm, b = 20 µm.

Five other *Passalora* species with solitary conidia and caesalpinioideous resemble *P. caesalpiniicola*: *P. aenea* (Cif.) U. Braun & Crous differs by its shorter conidia (19–53 × 4–6 µm, 2–5-septate; Braun & Crous 2003), *P. bauhiniicola* U. Braun by its longer conidia (35–70 × 6-8 µm, 3–8-septate; Braun 2001), *P. cercidicola* (Ellis) U. Braun by its longer conidia (20–80 × 4–8 µm, 3–5-septate; Braun 1995), *P. schizolobii* M.J. Wingf. & Crous by its longer verruculose conidia with more septa (40–90 × 3–4 µm, 1–8-septate; Wingfield et al. 2006), and *P. chamaecristae* (Ellis & Kellerm.) U. Braun by its narrower conidia (31–65 × 4–7 µm, 1–5-septate; Braun & Mel'nik 1997).

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